

R E M A R K S

Claims 1-41 stand as previously presented.

Claims 1-41 were considered in the Office Action.

5 Claims 24-41 stand rejected under 35 U.S.C. 112, first  
paragraph, as failing to comply with the written description  
requirement. The rejection was directed in particular to  
independent claims 24 and 33, with the remaining claims in the  
group being rejected as dependent upon rejected claims 24 and  
10 33. Claims 9-13, 18-22, 28-32 and 37-41 stand rejected under  
35 U.S.C. 112, first paragraph, as failing to comply with the  
enablement requirement. The rejection was directed in  
particular to claims 9, 18, 28 and 37 for citing multiple  
tables. Claims 10-13, 19-22, 29-32 and 38-41 stand rejected  
as being dependent upon rejected claims 9, 18, 28 and 37, and  
15 for containing limitations regarding the slope of the lookup  
tables being one-to-one for large distance and larger than  
one-to-one for small distances.

Claims 1-2 stand rejected under 35 U.S.C. 102(b) as being  
anticipated by Rahman et al., "Multi-scale retinex for color  
20 image enhancement, IEEE 0-7803-3258" (hereinafter Rahman).  
Claims 3-9, 14-18, 23-28 and 33-37 stand rejected under 35  
U.S.C. 103(a) as being unpatentable over Rahman in view of  
Frankel et al., U.S. Patent 4,384,336 (hereinafter Frankel).

25 The drawings stand objected to as not showing any steps  
of the method claims. New figure 9 has been added. The  
"BRIEF DESCRIPTION OF THE DRAWINGS" has been amended  
accordingly, and a paragraph has been added to the "DETAILED  
DESCRIPTION OF THE PREFERRED EMBODIMENT" discussing the new  
figure. Support for the amendments is found, for example, in  
30 originally filed claim 5. No new matter has been added.

Applicants respectfully traverse the rejection of claims  
24-41 under 35 U.S.C. 112, first paragraph, which is directed

specifically at claims 24 and 33. The subject matter cited by the Examiner as not being described in Applicants' specification appears in the preambles of claims 24 and 33, and corresponds to an existing apparatus being improved by the limitations in the body of claims 24 and 33. Please note that the existing apparatus in the preambles of claims 24 and 33 is described in Frankel, for example, in claims 2, 4, 47 and 49. Frankel is incorporated by reference in the present application on page 3, lines 5-7. Applicants therefore respectfully disagree that claims 24-41 include subject matter not described in the specification, because the subject matter at issue corresponds to prior art described in Frankel and incorporated in Applicants' specification, and appears only in the preambles of claims 24 and 33.

Applicants also respectfully traverse the rejection of claims 9-13, 18-22, 28-32 and 37-41 under 35 U.S.C. 112, first paragraph for failing to comply with the enablement requirement. Regarding claims 9, 18, 28 and 37, Applicants believe that one skilled in the art could practice the claimed multiple tables without undue experimentation based on the Applicants' specification, including the originally filed claims. The Examiner has indicated that the derivation and construction of the tables is not disclosed. Applicants' respectfully disagree. As described in Applicants' specification, the lookup tables correspond to a tone map as plotted in figure 7. See, for example, Applicants' specification at page 2, lines 3-6:

"A common technique used to map one dynamic range onto another dynamic range is the use of a nonlinear curve, often implemented digitally with a tone map. **Tone maps are lookup tables** that transform numbers from an input range (1000:1 in an outdoor scene) to a new range (100:1 for a reflective print)."

Also see Applicants' specification at page 4, lines 23-24:

"Figure 7 is a **plot of a tone map** with a dead band at the origin in accordance with the present invention."

5 Applicants' specification describes the content of a tone map or lookup table, for example, at page 9, line 8 - page 11, line 12. In particular, page 9, lines 8-16 described the horizontal portions of the plot of the tone map, forming a hard limit used to compress large contrast differences. Page 10 11, lines 6-12 described the "dead band" near the origin of the plot of the tone map as shown in figure 7. Applicants believe that one skilled in the art may populate and access a lookup table based on a tone map such as that plotted in figure 7, and may further divide the plot into multiple lookup 15 tables, without undue experimentation based on Applicants' specification, including the originally filed claims. Applicants therefore respectfully traverse the rejection of claims 9, 18, 28 and 37 under 35 U.S.C. 112, first paragraph for failing to comply with the enablement requirement.

20 Applicants also respectfully traverse the rejection of claims 10-13, 19-22, 29-32 and 38-41 under 35 U.S.C. 112, first paragraph for failing to comply with the enablement requirement with respect to the various slopes in lookup tables corresponding to tone maps. An exemplary tone map is 25 plotted in figure 7, illustrating one possible tone map whose slope changes with distance. For example, with respect to claim 12, see the small "dead band" near the origin of the tone map plotted in figure 7, followed by the portion having a one-to-one slope. Applicants believe that the various slope-related limitations recited in claims 10-13, 19-22, 29-32 and 30 38-41 are sufficiently clear that one skilled in the art could

practice the invention without undue experimentation. For example, regarding claim 13, given the information that the slope is to be different for each different distance between the different areas, it would not be difficult to construct a tone map in which the slope continuously changes, such as by beginning at the origin with a vertical line (infinite slope) and continuously reducing the slope until it nears zero with a horizontal line at the most distant areas of the image.

Applicants therefore respectfully request that the rejection of these claims be withdrawn and that the claims be allowed.

The independent claims, claims 1, 5, 14, 23, 24 and 33 all contain the limitation that contrast differences are modified as a function of the distance between different areas. For example, claim 1 is as follows:

"A method of changing the dynamic range of an original image to more closely match the dynamic range of the medium used for a reproduction, comprising:

modifying the contrast differences between different areas of the original image **as a function of the distance between the different areas."**

(Claim 1, emphasis added)

The above highlighted features which differentiate the present invention from the cited references are features that are not anticipated by the cited references and would not have been obvious to a person with ordinary skill in the art having the cited reference. Rahman does not disclose that the contrast differences between different areas of an image are limited as a function of the distance. Page 1004, lines 33-37 of Rahman state that "This 'graying' of areas of constant intensity occurs because the retinex processing enhances each color band as a function of its surround." Please note that

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5 this does not indicate that the retinex processing operates as  
a function of **immediate** surroundings, and that there is  
therefore no disclosure that the contrast differences are  
limited as a function of the distance. In fact, for any area  
in an image, the remainder of the image could be referred to  
as its surroundings, regardless of distance. Applicants  
therefore respectfully believe that the independent claims are  
allowable over the cited references. The dependent claims are  
believed allowable at least because they depend on an  
allowable independent claim.

10 The Applicants believe that the currently pending claims  
are allowable over the cited references and respectfully  
request the timely issuance of a Notice of Allowance.

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Respectfully submitted,  
KLAAS, LAW, O'MEARA & MALKIN, P.C.

By:

Guy R. Clinger  
Guy R. Clinger, Esq.  
Registration No. 42,422  
1999 Broadway, Suite 2225  
Denver, CO 80202  
(303) 298-9888  
Fax: (303) 297-2266